

**Title:** Pharmacy students' preparedness to communicate with mental-health disorders

patients

**Article type:** Original research

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**Practical implications:** This study is the first investigating the pharmacy undergraduate population in the UK and the results will trigger more studies in this area.

**Social implications:** Early detection of mental health problems leads to early intervention and aids in suicide prevention

**Originality:** This is the first study conducted in a UK pharmacy undergraduate population. For the results to be significant, a larger scale study needs to take place in more than just two universities.

**Conflict of interest:** None were declared

**Funding:** Self-funded

**Abstract:** The aim of this project was to explore whether fourth-year pharmacy students in England are prepared to communicate with mental health patients. Mental health problems are rising in the United Kingdom, affecting around 1 in 4 people. A questionnaire based study measured, the knowledge about, and attitude towards mental health problems. Participants were fourth-year pharmacy students from two west midlands universities. More males than females correctly answered the 'attitude towards mental health' questions. However, overall, only 45.5% of students answered the 'attitude towards mental health problems' questions correctly. Males demonstrated a better level of knowledge than females, with 33% overall answering 6 or more questions out of the 13 knowledge questions correctly. Sixty five per cent of participants scored under 50%. The highest total score was 81%, and the lowest was 19%, three people did not answer any questions. In conclusion, a gap in knowledge was identified within the fourth-year pharmacy student cohort, and that more intervention will be required to improve knowledge and attitudes such as the Mental Health First Aid™ courses.

**Key words:** pharmacy-students; mental-health; communication; self-awareness; practice-preparedness

## 34    **Introduction**

35    Mental health problems are common; 1 in 4 people in the UK will experience a mental  
36    health episode at least once in their lifetime (Mind.org.uk, 2013). Globally, studies show  
37    that frontline healthcare practitioners occupationally are at higher risk of mental health  
38    problems when compared to other occupations, possibly due to the demanding regular  
39    interaction with patients, their workload and shift working (Brooks et al., 2011).

40    Bamgbade et al., (2016) explored both knowledge and attitude in an American cohort, and  
41    their effect on communication. In this paper, the authors emphasised the importance of  
42    knowledge and training in order to improve the pharmacy students' attitude. The study  
43    concluded that after the education and training interventions, the pharmacy students'  
44    attitude toward patients with depression and schizophrenia was improved. However, it  
45    focused on depression and schizophrenia and did not look at mental health problems in  
46    general (Bamgbade et al., 2016).

47    Two further studies in pharmacy students were conducted, one in Japan (Kamei et al., 2011)  
48    and another in Birmingham, AL, USA (Cates et al., 2009). These studies used the Whatley  
49    Social Distance Scale and the index of attitudes toward the mentally ill. The two studies also  
50    collected data on students' demographics, and also considered personal experiences with  
51    mental health problems.

52    Additionally, Cates et al., (2009) also included knowledge, where the 3<sup>rd</sup> year students  
53    responded to the survey before and after their psychiatric therapeutics classes. The results  
54    from the two studies were similar, with both showing positive responses on both scales of  
55    the combined Whatley Social Distance Scale and the index of attitudes toward the mentally  
56    ill. Both showed that females in general improved by up to five fold compared to males in  
57    their responses. Cates et al., (2009) concluded that the responses of 3<sup>rd</sup> year medical

58 students, exposed to an education intervention, were not different than those who had no  
59 exposure. Hence, there was little difference before and after the psychiatric therapeutics  
60 classes (Cates et al., 2009).

61 Cates et al., (2009), commented that *'it has been hypothesised that students need to*  
62 *understand patients' experiences with their illness, in order to affect their attitude'*. This was  
63 supported by Kamei et al. (2011), whose results show that students who had experienced a  
64 mental health problem, or knew a family member or friend with mental health problems,  
65 demonstrated a more favourable attitude (Kamei et al., 2011).

66 Cates et al., (2009), did not recommend future interventions other than education to  
67 improve the attitude towards mental health problems (Cates et al., 2009)

68 Bianchi et al., (2016) focused on senior medical doctors' attitudes. Only 13 senior doctors  
69 within a North London hospital, who were mostly male, were interviewed. Consequently,  
70 the results may not be comparable, due to the small sample size and the different  
71 population group (practicing professionals rather than not students). The results in this  
72 study demonstrated that high levels of stigmatisation and negative attitudes remained  
73 towards those with mental disorders and towards colleagues who became mentally ill  
74 themselves.

75 Jyothi et al., (2015) focused on exploring the level of basic knowledge, and attitudes, of  
76 students from different health disciplines. In this study, they included medical (n=22),  
77 pharmacy (n=17), and nursing students (n=11). Although they included three professions,  
78 the response rate was poor; with a total of only 50 surveys completed. Furthermore, the  
79 study sample was skewed towards the male gender. Hence, again, the results may not be  
80 representative of the general population. This study concluded that students have a  
81 negative attitude toward the mentally ill person, and that they were afraid of what other

82 may think of them if they were diagnosed with any psychological disorder (Jyothi et al.,  
83 2015). Using the same method Bamgbade et al., (2016) and Bell et al., (2008), they  
84 concluded that further improvements in education and awareness of mental illness are  
85 required (Jyothi et al., 2015).

86 Rose et al., (2006) looked at the impact of education (the intervention) delivered by  
87 recovered mental health patients, on the attitudes of pharmacy students towards mental  
88 health problems. The target population was in their fourth-year, with control group who did  
89 not receive the education intervention. The study showed that in the group who received  
90 the intervention, attitudes toward people with mental illness was improved. This  
91 demonstrates that having contact with recovered patients, who are currently taking mental  
92 health related medication, provides a valuable learning opportunity for students to  
93 understand mental health illnesses. However, this study measured only social distance and  
94 did not identify exactly what the students had learned. Cates et al., (2005) study included  
95 analysis of years in practice, and found that the more experienced pharmacists  
96 demonstrated a more positive attitude.

## 97    **Method and design**

98    Most of the studies found were conducted in the United States of America, Australia and  
99    other European countries but not the United Kingdom. In deciding the best method to  
100    conduct this study, it was clear that questionnaires were used in most studies such as Cates  
101    et al., (2009), and Kamei et al., (2011), however, some studies such as Bianchi et al., (2016)  
102    used interviews.

## 103    ***Aim***

104    The aim of this study was to establish whether pharmacy students in their final year, need  
105    to undergo a specialist training in mental health prior to graduation or if the current  
106    curriculum content is sufficient.

## 107    ***Ethics***

108    This study was approved by the Ethics Committees of the University of Wolverhampton and  
109    University of Birmingham, Schools of Pharmacy, as the project involved students from both  
110    universities.

## 111    ***Project Design***

112    This study was a mixed design to explore the level of preparedness (exposure, knowledge  
113    and attitude), of undergraduate pharmacists to communicate with patients with mental  
114    health problems. The study was designed as an anonymously completed online  
115    questionnaire.

## 116    ***Sample***

117    This study was focused on students in year four of the Master of Pharmacy degree enrolled  
118    at either the University of Wolverhampton or the University of Birmingham. The year four  
119    students had completed most of their year four topics plus three previous years of  
120    pharmacy education, including disease states, therapeutics, clinical pharmacy, pharmacy

practice and communication skills. They had also undertaken their experiential placements, which provide awareness of how to act professionally during a patient encounter. Participation was voluntary; the questionnaire was distributed to the target students from both universities via email. There were no other inclusion or exclusion criteria. An overview of the project, and information sheet were sent together with a link to the survey, through their online learning platforms in both universities. Students who were interested in participating used the link to access and complete the questionnaire. In Wolverhampton, hard copies were made available in classes on request to allow for maximum participation. Hard copies were then entered manually into the online survey by the researcher and checked by the supervisor.

## **Methods**

A 23 – item questionnaire was constructed, with 16 questions adapted from a validated questionnaire developed by Mental Health First Aid™ in Australia (Mental Health First Aid., 2016). To ensure that the questions were correct, two academics from the University of Wolverhampton completed the online questionnaire and provided feedback to the researcher. The questionnaire was then assessed for understandability and time taken to complete by peers from the University of Wolverhampton and Birmingham. After all amendments had been made, the link to the online survey was sent by group email to all year 4 students inviting them to participate.

The questionnaire was divided into four domains;

- Demographics: This is measured within question 1-3 and 6. This included gender, and the University of the participants

- Exposure: This domain was measured within questions 4, 5 and 7. It is related to their experience in communicating with a friend or family member diagnosed with mental health problems, or if they experienced mental health problems themselves.
- Attitude: Questions 8, 12, 14, 16, 17 and 23, related to whether the students knew how to respond to certain situations when facing someone with mental health problems.
- Knowledge: Questions 9, 10, 11, 13, 15, 18 to 22, related to the effects of mental health on the patient's lifestyle and family.

Questions 1-7, required yes or no responses; while from questions eight onwards, students were provided with a choice from three answers; agree, disagree or don't know. A Likert scale was used from question 8 onwards, and each correct answer was given one mark.

Then the total score was calculated for each participant from a possible total of 16 points.

The questionnaire was prepared in Google™ Forms™.

After collection, all data from the two universities were collated using a Microsoft Excel™ spreadsheet. The demographics of the population were tabulated to summarise them. The characteristics were then charted to visually present the data. Standard deviation was calculated as required, to compare results between genders and universities. Data were coded as UNIA (Birmingham) and UNIB (Wolverhampton).

The intention had been to compare the samples from the two universities; however, only eight students from the University of Birmingham completed the survey, which is not truly representative. Accordingly, the data was combined as one fourth year pharmacy student sample from two sites.



## **Results**

Figure 1 shows the survey questions, it was intentional not to separate the questions into domains, to avoid influencing the students' answers, especially in the exposure and attitude domains.

*Insert figure 1 here*

### **Demographics results**

There were 48% females, 51% males and 1% did not disclose their gender. UNIA participants constituted 11% (n=8) of the total study population and UNIB constituted 89% (n=62).

### **Exposure to Mental health problems results**

Some 9% of the population reported having mental health problems and 19% claimed experience with mental health problems within their immediate family. Also, 17% reported having had a friend with mental health problems, with 3% of students in a relationship with a person diagnosed with mental health problems. Only 18% of the total sample had work experience in mental health facilities. While there was no free comments question, some students wrote comments related to them believing that by disclosing that they are having mental health problems, it may affect their fitness to practice in the future.

### **Attitude Questions Results**

Table 1 shows the results of the attitude questions for the total population. Standard deviation (S.D.) was used to identify the difference in opinion between male and female students. More male students scored the correct answer in 4 questions out of 6. Male and females were equal in two questions only. There was an average of 45.5% of students who could be counted as having the correct attitude towards patients with mental health problems.

*Insert table 1 here*

## **Knowledge Questions Results**

Table II is a summary of the students' knowledge on mental health questions. There were more male students who scored the correct answer in 7 questions out of 13. Females scored higher than males only in two questions and they were equal to males in one question only. There was average of 33% of students who could be counted as having good knowledge about mental health problems and patients with mental health problems, as they achieved 50% or over in this section.

*Insert table II here*

## **Total scores of participants**

Table III shows the summary, in percentages, of the final mark that participants achieved based on correct answer for each question (questions 8-22) by gender and university. The highest total score was 81% and the lowest score was 19%, excluding three people who achieved 0%. There were 35% of students had total score of 50% or over.

*Insert table III here*

## 203 Discussion

204 At the beginning of the project, it was hypothesised that 3 years of pharmacy education  
205 would have prepared pharmacy students to communicate with mental health patients.  
206 The total population demographic was distributed quite evenly between males and females.  
207 The survey uptake rates between UNIA and UNIB were vastly different.  
208 There was an association between the exposure to mental health problems and the  
209 improvement in the level of knowledge about mental health problems, but there was no  
210 association with improving the attitude of the students. This conflicts with the findings of  
211 Cates et al., (2009) and Kamei et al., (2011), who concluded a positive effect of exposure on  
212 students' attitude. Males demonstrated a more positive attitude towards mental health  
213 problems than females in the study sample. Students of both genders answered psychosis  
214 and self-harm questions incorrectly, which demonstrates that they do not know how to react  
215 when patients are experiencing a psychosis or self-harming, and that there are gaps in their  
216 knowledge.  
217 This concurred with the conclusions of both Bianchi et al., (2016) and Jyothi et al., (2015).  
218 Their two studies also found that medical and nursing students had a negative attitude  
219 towards mental health illness. There was no baseline for comparison within the UK for  
220 pharmacy students. Bell et al., (2008), likewise concluded that pharmacy students had sub-  
221 optimal attitudes towards people with mental illnesses. They investigated the change in  
222 attitude in pharmacy students toward patients with schizophrenia and severe depression in  
223 six different countries; Australia, Belgium, Finland, India, Estonia, and Latvia. This study  
224 utilised the international pharmacy student health survey applied in the third year of  
225 pharmacy studies. Benita et al., (2016) used closed ended questions with a 5-point Likert  
226 scale to measure stigmatisation behaviour. Their study concluded that there was high level

227 of stigmatisation within the pharmacy students in all countries. However, this study did not  
228 take account of knowledge and experience in mental health problems or cultural and social  
229 background of participating students. Gable, et al., (2011) examined pharmacy student's  
230 perceptions of mental health problems in the USA. Like Bamgbade et al., (2016) and Bell, et  
231 al., (2008), they measured the social distance of students and concluded that mental health  
232 education does influence the views of pharmacy students on mental health illness. Gable, et  
233 al., (2011) had only a small study population but did have a control group. The intervention  
234 group received mental health illness education, and showed an improvement in  
235 stigmatisation compared to the control group. This indicates that further education dose  
236 help pharmacy students to understand patients with mental health illness. This agrees with  
237 the conclusions of Bamgbade et al., (2016) regarding anti-stigma interventions helping to  
238 improve stigma and knowledge. This indicates that further intervention such as additional  
239 courses may be needed to improve the attitude and knowledge. One possibility is the  
240 Mental Health First Aid™ course (Morrissey, et al. 2017).

241 Abbas et al., (2015) focused on the perception and prevalence of depression in  
242 undergraduate pharmacy students in Pakistan. This study focused on depression, but they  
243 found education did not help to reduce stigmatisation, conflicting with the finding in Gable  
244 et al., (2011). The study of Abbas et al., (2015) investigated the professional aspects, which  
245 other studies did not, and they discovered that >50% of students expressed willingness to  
246 work alongside a person who has depression, however the participants were first year  
247 pharmacy students, who may not have sufficient mental health education and professional  
248 experience. Bell et al., (2006) focused on the attitudes of Australian third year pharmacy  
249 students as a control group and graduates (after 6 months training in hospital) as their  
250 intervention group, toward patients with schizophrenia and severe depression. They found

251 no significant difference between the two groups in terms of social distance and attitudes.  
252 Our study concurs with Bell et al., (2006), in that while it was assumed that fourth-year  
253 pharmacy students already has education on mental health illness, there was still a negative  
254 attitude towards mental health illness. While there was no free comments section in our  
255 study, some students wrote comments related to them believing that by disclosing that they  
256 are having mental health problems, it may affect their fitness to practice in the future.

#### 257 **Limitations**

258 The population in UNIA was small, hence it was not possible to meaningfully compare to the  
259 UNIB population.  
260 The demographic data collected did not consider the age or the ethnicity of students, both  
261 of which may have affected the outcome.

## Conclusion

In conclusion, this study demonstrates that after three years of pharmacy education, the overall attitude and student's perception of mental health illness had not improved. There were gaps in students' knowledge of mental health illness, suggesting that further educational intervention is required to improve the students' knowledge on mental health disorders.

Further intervention may be needed to improve both attitude and knowledge such as Mental Health First Aid™ training or inviting recovered patients to share their experience with the students. While this project is the first investigating pharmacy students in the UK and results cannot be generalised, it has created a baseline for future research. It is recommended that:

- Pharmacy undergraduate students undertake a Mental Health First Aid™ course as continuous professional development (CPD) to improve their own self-awareness, before commencing their pre-registration position and those who graduated without this level of knowledge in their pre-registration year, should undertake a catch-up course.
- Universities should consider facilitation of student participation and subsidise the cost of manuals.

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